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City of Owensboro
Kentucky

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Office of the Secretary
Federal Communications Commission
Washington, D.C. 20554

Comments to NPRM Docket 96-86 Public Safety
Operational, Technical and Spectrum Requirements

Commissioners:

The City of Owensboro has recently constructed an 800mhz trunk and central dispatch system for our community, moving from a variety of bands. We feel that this experience may give us some insight into the issues being addressed in this document.

These are our categorized responses to the eight areas addressed in NPRM 96-86.

Public Safety Definitions:
The definitions proposed for Public Safety and Interoperability seem to be on target. Even though many agencies seem to be involved in safety due to their nature (hazardous, etc.), it must be agreed that responsibility for management of any potential situation must still reside in what is defined as Public Safety, and they need independent spectrum. Various types of interoperable systems (as defined) can bring groups together as needed.

Interoperability Options:
Moving everyone to a common frequency band works in a local setting such as ours, but I doubt that it would be practical on a nationwide basis. Requiring equipment to operate on a mandatory list of frequencies, no matter the needs of the particular customer, would unduly complicate equipment and increase costs. The use of universal mutual aid channels has the best hope for success. Even with trunked systems such as ours, a Motorola and an Ericsson system can communicate with each other on these frequencies in the talk around mode, operating as standard repeater units. Mutual aid should only be required so far as the band of the affected equipment. Multiple band width equipment requirements would create technology from rules and regulations rather than needs. In our situation, our 8 channel trunk system is capable of supporting all local government agencies in this area with 95% coverage. Local politics, unfortunately, has interfered with this plan. In several cases, smaller agencies are spending twice what it would cost to join our trunked system on expansions into high band frequencies, wasting spectrum and operating on low technology. It would be tempting to require joint use of efficient spectrum in situations such as these, but the same political minded people who interfere now would find another way to manipulate new rules to their benefit.

Operational Issues:
The majority of our communication needs can be handled by our 800mhz trunked system. This system appears to be the most efficient available. Because we are digital, we can transmit data as well as voice. Because we use TDMA technology, we can transmit both on the same frequencies/talk groups. 800mhz coverage for public safety can be improved by lifting some of the power and antenna height restrictions. Given the technical performance ability of 800mhz trunked systems, this would appear to be the best area for the majority of public safety.
Most of our point to point communications are being switched from radio spectrum to fiber optic. We feel the inherent problems of fiber are out weighed by its performance, such as fibers ability to handle enough data for video, GIS maps, etc.. Being that these systems are fixed, it makes sense that much of this should be transmitted by other means than radio. Links to a radio system, such as 800mhz trunked, could be

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made for mobile units to have access to the fixed point system. We will be doing this with our GIS system. It will be fiber linked to fixed locations, with 800mhz links to mobile units.

Service features vary from one system to another and from one user to another, not everyone needing top of the line equipment or capability. Our 800mhz trunked system is capable of 9600 baud. We are implementing Automatic Vehicle Location (AVL) equipment and mobile data terminals with this 800mhz system. Things such as full motion video seem to fall under a wants list rather than a need list. Given the required spectrum for this, it does not seem worthwhile. I would imagine the larger public safety users might ask for and be able to afford this equipment. Smaller users would do without the equipment and may be made to sacrifice needed basic spectrum for someone else's cutting edge wish list. Additional spectrum should not be allocated for this technology at this time until needs can be better assessed. Efficient users of spectrum should have priority verses large users with a dreamed up wish list.

System Requirements:
To some extent, the market should determine the systems rather than FCC rules. Spectrum allocation in a local area should be weighted in favor of the most efficient users of spectrum. Inefficient users may not have enough spectrum available to cover their needs, real or wished for. Efficient systems, such as 800mhz trunked, can handle a great many users in a local environment. Political problems may interfere with this, but superior equipment in the hands of the efficient and limited spectrum would be a better tool to force cooperation than specific rules to this effect. In our situation, our trunked system would handle all the City and County governmental needs, not just public safety. This includes AVL, mobile data terminals, direct weighing and billing transmittal by sanitation, and other technical uses in addition to voice communications. If efficient systems become the norm, then the plethora of interoperability problems will narrow down to fewer, albeit more challenging, problems. These will eventually be solved.

Technology Issues:
As we have previously suggested, the efficient should carry the day. Technology has evolved (and continues to evolve) at a staggering pace. Rather than selecting or mandating a technology, the FCC should set minimum levels of efficiency and remain technology neutral. The market place will sort through the technologies better than can a government agency. We would like to see other less efficient users be given incentives to move to the more efficient systems, either through joining existing systems or converting their systems to more efficient technologies. Mandating these things in a politically charged environment does not always give desired results. The current TDMA FDMA battle being waged is an example of what can go wrong. APCO has lacked the foresight to stay out of the technology debate and has allowed itself to become embroiled in a debate that started with APCO16 and has continued with APCO 25, both projects seeming to put APCO in very close association with a particular manufacturer. This situation has somewhat tarnished the image of APCO as an independent user association. This is not where we want to see the FCC. This image APCO has acquired would lead us to suspect their motivations should they (or someone else) be given some say in the technology to be used in a particular situation. A general strategy we envision is priority given in local areas (markets) to the spectrally efficient applicant. That is to say, competitors for the spectrum would have to show the most efficient use (most channels in the bandwidth available), followed by the most efficient use of those channels (at present, digital trunked use). The loser would then either have to seek another band, contract with a SMR, or join with the winner. Receiver standards would still seem unnecessary. In fact, we suspect they would only add to the interoperability problems. From another perspective, if the FCC chooses a technology, receiver specifications would only increase market concentration through government mandated technology.

Spectrum Allocation
Reallocation of the spectrum (basically, starting over) would be ideal, though nearly impossible. It may be feasible to expand certain areas and phase out others in an attempt to condense public safety into fewer groups, although this may be easier said than done as well. Again, we must put our support with the efficient systems. A group of public safety users in one market area (by this, we mean an area where one system could conceivably support all users) that operate analog wide band equipment either simplex or repeated are wasting spectrum and should be refused any modifications or expansions in their licenses that do not either trunk or narrow bandwidths. Financial problems abound, yet given enough incentives,

money usually appears. Many users are not even aware or believing of the technical abilities of new systems. For instance, our 8 trunked frequencies can handle thousands of talk groups. If you equate a talk group with a frequency for each user and/or department, efficiencies are radically higher for trunked systems. Incentives need to be made not to force, but to strongly encourage smarter systems.

Transition
One of our concerns is the 800mhz band. After we have installed a state of the art trunked digital system, we would hate to see some sort of change other than expanding Public Safety spectrum in 800mhz. 800mhz at this time is the best and most efficient area for radio, working well inside structures as well as outdoors. If users are encouraged to move towards efficiency, most will end up in 800mhz if spectrum is available. The frequencies these users surrender could then be reallocated to non-public safety.
Public Safety use of private systems (CMRS's) brings up some considerations; antenna height, power, and coverage restrictions are different for the two. We do not believe the two systems can mix without unfair advantage to the private systems. In our situation, we had a system designed for all governments in the area to use. Our coverage is 95%. Some agencies have now backed out of the agreement and are considering going to a private system. Because the private system has fewer restrictions they have a wider area of coverage. This hinders the concept of efficiency. We are also unconvinced that the private sector would provide the security and redundancy needed. Although we agree that money within Governments is tight, any change as well as no change will cost money. Surrendered low band areas could be auctioned to non-public safety. The problem is, how would the revenue be shared? Our fear is that politics would move the money. Potential users may also opt for such things as AVL, MDT's, full motion video, and other things that they should fund themselves. Options like these can double or triple the cost of a system and should be gradually implemented and paid for locally. In our opinion, money is available in most areas if the local politicians are willing to allocate it away from pet projects. The FCC does not need to set regulations that make decision making (and money) easier for politicians.
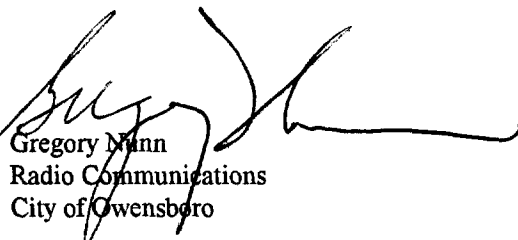
Competition in the Market (Project 25)
Any rule making should be technology neutral. Performance based rules will be enough. All we need to care about is getting it done efficiently, not how it is accomplished. As far as any inclusion of APCO 16 or 25 rules, we think this would be a mistake. Perception has APCO as nothing more than an extension of Motorola. Motorola dominates a market that could be defined as an oligopoly, something that does not encourage technological growth. This can be evidenced by the failure of their FDMA to meet the stated goals of APCO 25. But because of market dominance, they're sticking to the technology. If APCO was neutral and the market was free, FDMA would be "old" technology by now. Other companies are producing results in other areas and expanding. Only stagnation results from sticking to a single technology. National security itself would eventually be at risk should our entire radio system be affected by a technology defined rule.
If we look to the computer industry, we can see some similarities between it and the radio industry. For instance, Apple and IBM have had two different "technology" approaches and results. Apple has kept its architecture restricted. Only a limited number of vendors can attach hardware and limited software is available outside of Apple. IBM has made its architecture open and available to many. Clones are to be found everywhere, hardware and software is common, and everyone can cross communicate. This is what will think will happen if the radio market is left to grow.
Set rules to efficiently use what we have and can aquire. The market will respond and create a variety of ways to accomplish this, some of which have not yet been invented.

Thank you for the opportunity to comment on this NPRM.

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